Introduction: Closing the Gap Between the "Is" and the "Ought"

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Twenty years to the day of the 1986 Reykjavik summit meeting where President Ronald Reagan and Soviet President Mikhail Gorbachev came close to an agreement to eliminate all nuclear weapons, a small conference was held at the Hoover Institution to discuss whether the possibilities of a world without nuclear arms envisioned at Reykjavik could be brought to fruition. The outcome of this discussion was published three months later in a January 2007 Op-Ed in the *Wall Street Journal* signed by former Secretaries of State George Shultz and Henry Kissinger, former Secretary of Defense William Perry, and former Senator Sam Nunn.

Their conclusion—endorsed by almost all conference participants—is that in order to deal decisively with the tremendous dangers presented today by nuclear weapons, American leadership will be required to take the world to the next stage—"to a solid consensus for reversing reliance on nuclear weapons globally as a vital contribution to preventing their proliferation into potentially dangerous hands, and ultimately ending them as a threat to the world." Most important, the United States and other nations must embrace both the vision of a world free of nuclear weapons and pursue a balanced program of practical measures toward achieving that goal: "Without the bold vi-

sion, the actions will not be perceived as fair or urgent. Without the actions, the vision will not be perceived as realistic or possible."

The response to this January 2007 article, both in the United States and abroad, has been remarkable. Mikhail Gorbachev wrote that as someone who signed the first treaties on real reductions in nuclear weapons, he felt it was his duty to support the *Wall Street Journal* authors' call for urgent action. Soon after, then-Foreign Secretary of the United Kingdom, Margaret Beckett, gave a speech in Washington outlining a path forward for dealing with nuclear threats. Explicitly drawing on the views of the authors of the *Wall Street Journal* article, Beckett stated that while the conditions for the total elimination of nuclear arms do not exist today, that does not mean we should resign ourselves to the idea that nuclear weapons can never be abolished in the future. "What we need is both a vision—a scenario for a world free of nuclear weapons—and action—progressive steps to reduce warhead numbers and to limit the role of nuclear weapons in security policy. These two strands are separate but they are mutually reinforcing. Both are necessary, but at the moment too weak."

With both interest and momentum building, in October 2007, a second conference was convened at Hoover—jointly sponsored with the Nuclear Threat Initiative—to further examine how to advance the vision of a world free of nuclear weapons and to look in greater detail at a number of practical steps consistent with this goal. A central theme from that conference is that in order to reduce reliance on nuclear weapons globally and prevent their spread into dangerous hands, we must establish common objectives with other states. If a strong coalition of nations bands together on a set of practical steps, it can exert powerful pressures to prevent new nuclear weapon states and make it much less likely that terrorists can get the materials they need to build a nuclear weapon.

In this context, the October 2007 conference reviewed ten papers that had been prepared in advance for the meeting. They are included in this book after editing by the paper authors taking into consideration

the discussions at the conference. They advocate urgent steps that can be taken now—and other steps that can build on the immediate priorities—to greatly reduce the nuclear threats that we face while enhancing global security and international stability. Those steps, many of which were summarized in a second *Wall Street Journal* Op-Ed that appeared in January 2008—include the following recommendations.

Further Reductions in Nuclear Weapons

According to published estimates, Russia now has about 15,000 nuclear weapons; the United States, 10,000; France, 350; and Britain and China about 200 each. The other nuclear weapons states—Israel, India, Pakistan, and North Korea—have smaller stockpiles, amounting to a total of about 200–350 warheads. The United States and Russia between them possess about 95 percent of all nuclear weapons, so that is where reductions should start. Our two countries should make further substantial reductions in their nuclear forces, making clear the expectation that the reductions process is moving forward. This could begin by lowering the number of operationally deployed strategic nuclear warheads permitted under the Moscow Treaty to 1000, followed by a second stage of reductions down to 500 (with another 500 in a responsive force). A third stage would limit the two countries to a strategic nuclear force with 500 warheads, all in a responsive force with zero operationally deployed. At some point, commitments will be required from other nuclear powers to limit their nuclear forces—including greater transparency and inclusion in a regime of monitoring and verification—in order to move beyond U.S. and Russian reductions toward a world with "zero" operationally deployed nuclear forces and—ultimately—a world without nuclear weapons.

De-alerting Strategic Forces

More than 15 years after the end of the Cold War, the United States and Russia continue to maintain thousands of nuclear weapons on

ballistic missiles that can be launched and delivered to their target in minutes. Nuclear forces deployed this way run real risks—in particular, that of an accidental, mistaken, or unauthorized launch of a nuclear ballistic missile. Moreover, U.S. and Russian force postures lend legitimacy to the nuclear ambitions of other nations, and to those nations' adoption of launch-ready nuclear postures. Over time more states are likely to follow in our footsteps, and increase their own forces' combat readiness, resulting in growing worldwide dangers of accidental or unauthorized launch, or theft, of nuclear weapons.

Increasing warning and decision time for leaders in both nations should be a priority, so that we reduce the risk of a catastrophic nuclear accident to as close to "zero" as possible. Action on this front would also downgrade the role of nuclear weapons and convey a hopeful and serious message to the world that reliance on them is diminishing. Near-term steps could take the form of both procedural and physical modifications to existing nuclear force postures, such as dropping prompt launch and massive attack options from war plans, isolating missiles from outside launch signals (thus removing first-strike and launch on warning as attack options and eliminating the prospect of terrorists exploiting hair-trigger postures to cause a nuclear incident or actual firing), and separating warheads from delivery vehicles. Over the longer term, warheads removed from missiles might be stored and jointly monitored in ways that preserve survivability and stability. Ideally, the U.S. and Russia would undertake such steps in unison. The goal would be to establish a global norm against launch-ready nuclear postures.

Missile Defense and Early Warning

Progress on these first two steps—further reductions in U.S.-Russian nuclear forces and changing Cold War era force postures—would be greatly facilitated by joint U.S. and Russian cooperation on missile defense, including an agreement on how to work together on joint

early warning and European missile defense, a shared concern for Russia, the U.S., and NATO.

Eliminating Short-Range Nuclear Weapons

Tactical nuclear bombs are the most likely targets for terrorists. This is an unacceptable security risk for all nations.

It is feasible that NATO could decide to recast its Strategic Concept during NATO's 60th anniversary celebration in 2009 to achieve the goal of ending NATO nuclear deployments in Europe. Russia's new dependence on nuclear weapons to compensate for its conventional weakness, however, will have to be dealt with—including resolving disagreements over the Conventional Forces in Europe Treaty. Confidence-building should be the first step and should be done now, taking advantage of cooperation that the U.S. and Russia have pursued in the past 15 years. Once mutual confidence grows, Russia, the U.S., and NATO can move to the next stage, beginning actual reduction measures, with the initial goal of banning tactical nuclear weapons in operational deployment. At some point, it may be best to place tactical nuclear weapons in the same "basket" as strategic nuclear weapons for elimination, acknowledging the difficulty of differentiating the two.

Verification and Compliance

Reaffirming President Reagan's maxim of "trust but verify" would improve near-term security and contribute to achieving the vision of a world free of nuclear weapons. This effort—to include transparency and confidence-building measures—must be global in scope and involve all aspects of the nuclear fuel and weapons cycles while also encompassing actors ranging from established nuclear states to non-state entities.

In the near term, the U.S. and Russia must ensure the renewal of essential monitoring and verification provisions that otherwise will expire with the START I Treaty in 2009. They must also enter into

discussions on non-deployed warheads. Second, diplomacy must focus on slowing and ultimately stopping the momentum toward nuclear armament in the non-nuclear weapon states. Third, to account for and globally secure nuclear explosive material, a number of initiatives—including a verifiable Fissile Material Cutoff Treaty (FMCT)—could be completed relatively soon and would help form a foundation for a more rigorous system of accounting and security. An international consensus must be built regarding ways to deter—or respond to—secret attempts by countries to "break out" of any agreements that are achieved.

Securing Nuclear Stockpiles Worldwide

Nuclear terrorism is a real and urgent threat. Al Qaeda and other groups have sought nuclear weapons and the materials to make them. If a terrorist group were able to obtain separated plutonium or highly enriched uranium (HEU), it is plausible they could make a crude nuclear explosive. The most effective tool for reducing this risk is to strengthen security for all nuclear weapons and weapons-usable nuclear materials worldwide. Preventing theft of nuclear weapons and materials would also block a major shortcut for states seeking nuclear weapons. Accurate and transparent accounting of nuclear weapons and materials stockpiles—a key part of a comprehensive nuclear security approach, and a prerequisite to verifiable and irreversible dismantlement of nuclear stockpiles—will also be an essential part of a verifiable path to deep reductions in, or prohibition of, nuclear weapons.

Although current efforts to improve security for nuclear weapons and materials have made substantial progress, particularly in Russia, unacceptable risks remain. Hundreds of buildings with HEU or, in some cases, plutonium in many countries around the world are demonstrably not secured against the kinds of outsider and insider threats that terrorists and criminals have shown they can pose. The most important ingredient for overcoming the obstacles to securing nuclear stockpiles is sustained leadership from the highest levels.

Also in the near term, the United States and Russia should seek to lead a global campaign to achieve effective and sustainable security for all nuclear weapons and weapons-usable nuclear materials worldwide as quickly as practicable, using all policy tools available. This campaign should pursue partnership-based approaches which respect national sovereignty and draw on ideas and resources from all participants—and which can be implemented while protecting nuclear secrets. The U.S. and Russia could play a key role in helping to implement United Nations Security Council Resolution 1540 relating to nuclear security by offering to jointly assist any nation in meeting its obligations under this resolution. The United States and other leading nuclear weapon and nuclear energy countries should seek to put in place best practices for global nuclear security to ensure that all nuclear weapons and every significant cache of plutonium or HEU has adequate protection from theft.

Controlling Fissile Materials Worldwide: FMCT and Beyond

Over the last decade, the United States has viewed a Fissile Material Cutoff Treaty (FMCT) as a modest arms control measure of limited scope that could codify the existing de facto moratorium on fissile material production for nuclear weapons by the five NPT nuclear weapon states, and cap the fissile material weapons stocks of the three nuclear powers that never joined the NPT. Those goals remain valid, especially now that India and Pakistan appear poised to ramp up their bomb-making capabilities. Instead of only banning the production of fissile materials for use in nuclear weapons, an FMCT should also prohibit the production of HEU for civil purposes (which would reinforce ongoing efforts to convert research reactors to use low-enriched rather than HEU fuels) and either phase out or adopt a long-term moratorium on the production of HEU for naval propulsion. Moreover, while the scope of an FMCT itself should focus only on the production of fissile material after entry into force, the treaty should be accompanied by a voluntary, multilateral arrangement—a

"Fissile Material Control Initiative"—that would address the challenges posed by pre-existing fissile materials and, over time, would help monitor, secure, manage, and reduce existing stocks of fissile materials around the world.

Preventing the Spread of Enrichment and Reprocessing

As countries consider nuclear energy, the potential spread of sensitive fuel cycle technologies—enrichment of uranium and reprocessing of spent fuel to separate plutonium—poses a serious non-proliferation challenge. Moreover, the latent potential to produce fissile material for weapons inherent in enrichment and reprocessing capabilities could be a substantial obstacle to further reductions or elimination of nuclear weapons.

Without prejudice to "whether" nuclear energy makes "economic sense" in any specific case, the most reliable and economical approach to nuclear energy is to rely on the international market for nuclear fuel services. That said, proponents of nuclear energy will advocate indigenous enrichment and reprocessing capabilities to promote energy security, to avoid falling behind regional peers technologically, and to gain security benefits, despite the economic and political costs and risks. As an alternative to indigenous development, advanced nuclear countries and the International Atomic Energy Agency (IAEA) could create a package of incentives that includes assurances of reliable supply of nuclear fuel, reserves of low-enriched uranium and spent fuel management. The purpose of this program would be to ensure that the means to make nuclear weapons materials is not spread around the globe.

Nuclear Non-Proliferation Treaty (NPT) and the Comprehensive Test Ban Treaty (CTBT)

Near-term steps to strengthen the NPT are essential, and include ratification of the Additional Protocol that allows for enhanced monitoring of civilian nuclear power programs. Bringing the CTBT into force

at an early date would also strengthen the NPT. The CTBT offers a significant opportunity toward implementing President Reagan's vision of establishing a global verification regime for nuclear weapons. A review of the past decade's development strengthens the argument that the CTBT is effectively verifiable; it does not undermine America's ability to sustain a nuclear deterrent; and its entry into force would enhance global security by constraining development of nuclear weapons. In the near term, leaders in the executive branch and Congress should undertake an informed bipartisan dialogue leading to ratification. The CTBT Organization is currently putting in place new monitoring stations to detect nuclear tests—an effort we should continue to support even prior to ratification. Enhancing international transparency and confidence-building measures associated with nuclear weapons and establishing a periodic review of the CTBT would assist in ratification.

Regional Confrontations and Nuclear Weapons Proliferation

As we look ahead to building the foundation for a world without nuclear weapons, we must recognize the reality that regional animosities can contribute to nuclear proliferation. An effective policy to prevent further proliferation will combine efforts to "de-legitimize" nuclear weapons as a source of national power with specific moves to defuse the most dangerous aspects of regional confrontations.

States that have terminated nuclear weapons programs (Brazil, South Africa, and Libya are examples) have done so when they deemed that possession of the weapons would create unacceptable dangers and that forgoing the program would actually make the ruling regime more secure, as well as provide tangible benefits to overall security. U.S. diplomacy in the 1980s, which led to an end of the Cold War, suggests that direct communication at the most senior levels of government is a useful—probably essential—tool to find peaceful ways to resolve disputes. In addition to dialogue and positive incen-

tives, multilateral pressures will also be an essential component to successfully addressing regional proliferation.

Turning the Goal of a World Without Nuclear Weapons into a Practical Enterprise Among Nations

Intensive work with leaders of non-nuclear as well as nuclear nations will be required to turn the goal of a world without nuclear weapons into a practical enterprise. While applying the necessary political will to build a consensus on priorities must be an international effort—one that incorporates the views of many nations—the U.S. and Russia, as the two leading nuclear powers, have a special role to play given their huge nuclear arsenals.

To facilitate progress on both near-term steps and achieving the vision of a world free of nuclear weapons, Washington and Moscow should enter into a broad "global security dialogue," designed to explore all aspects of security in the 21st century, including nuclear security. The process of nuclear diplomacy should also allow for early involvement of other key states, including, at some point, through the United Nations. Care should be taken not to "corner" nations that may lack enthusiasm for the vision or be averse to certain steps, as their positive involvement will be required. Most important, the process will also require the direct and sustained involvement of the president and other world leaders.

No one is under any illusion that progress on this complex nexus of nuclear issues can be achieved easily; however, one unavoidable fact is that we cannot wait to agree on every solution to every problem before we get started. Former Senator Sam Nunn has compared the goal of a world free of nuclear weapons to the top of a very tall mountain, noting that today, we are heading down—not up. In his words, "We can see that we must turn around, that we must take paths leading to higher ground and that we must get others to move with us. We must find trails leading upward." Achieving a world free from the threat of nuclear weapons will require a willingness to be idealistic

and realistic at the same time, in order to find a way to move through practical, near-term steps from what "is"—a world with a risk of increasing global disaster—to what "ought" to be: a peaceful, civilized world free of the threat from weapons of mass destruction. Today, we have both a security and moral imperative to present and future generations to close the gap between what "is" and what "ought" to be.

EDITORS' NOTE: Many of the chapters in this book begin with a summary or a concise discussion of the key issues and judgments pertaining to the chapter's topic. The issues are discussed in greater detail in the main text of the chapters; readers might notice some occasional redundancies in the language of the preliminary summaries and discussion later on in the chapters.